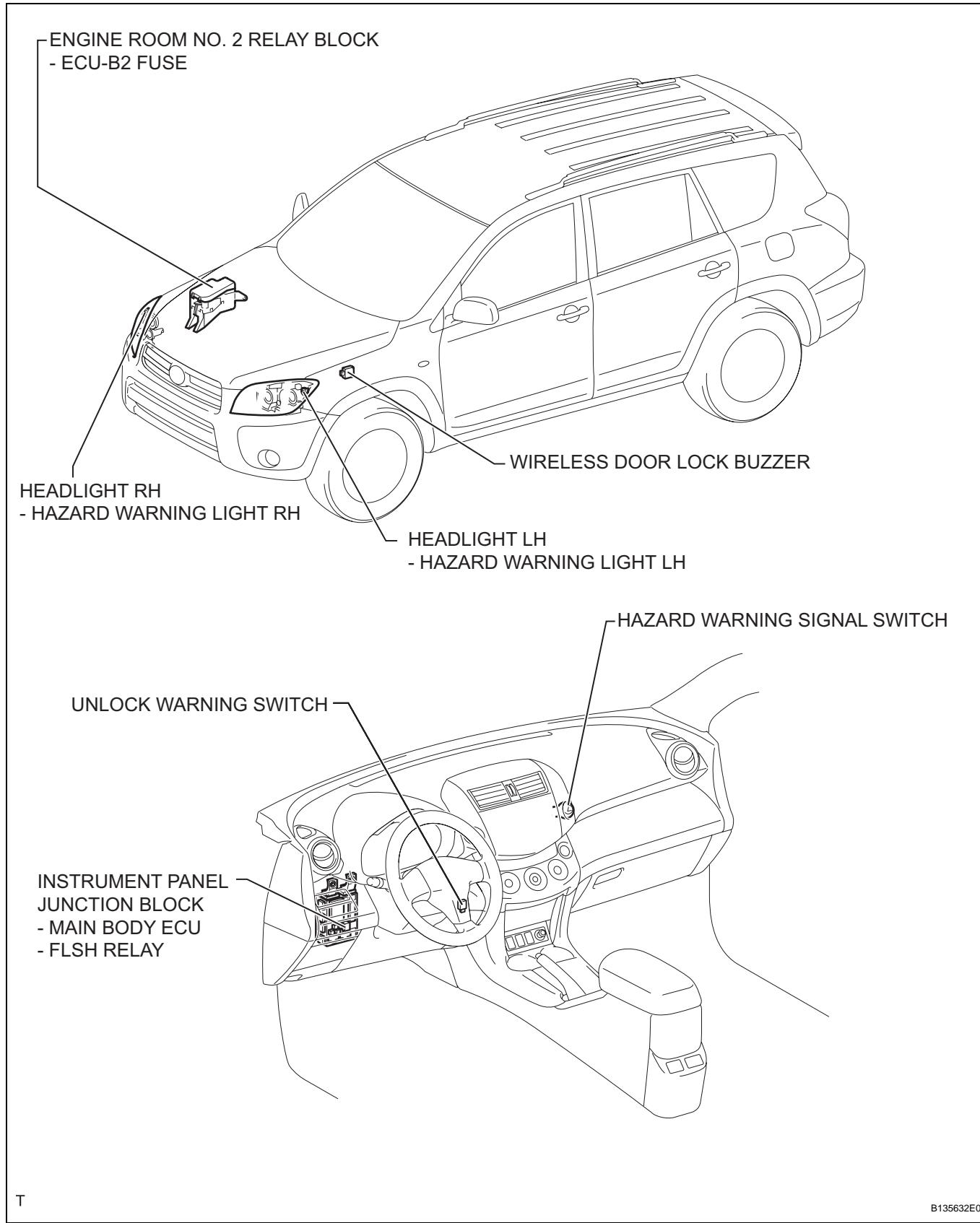
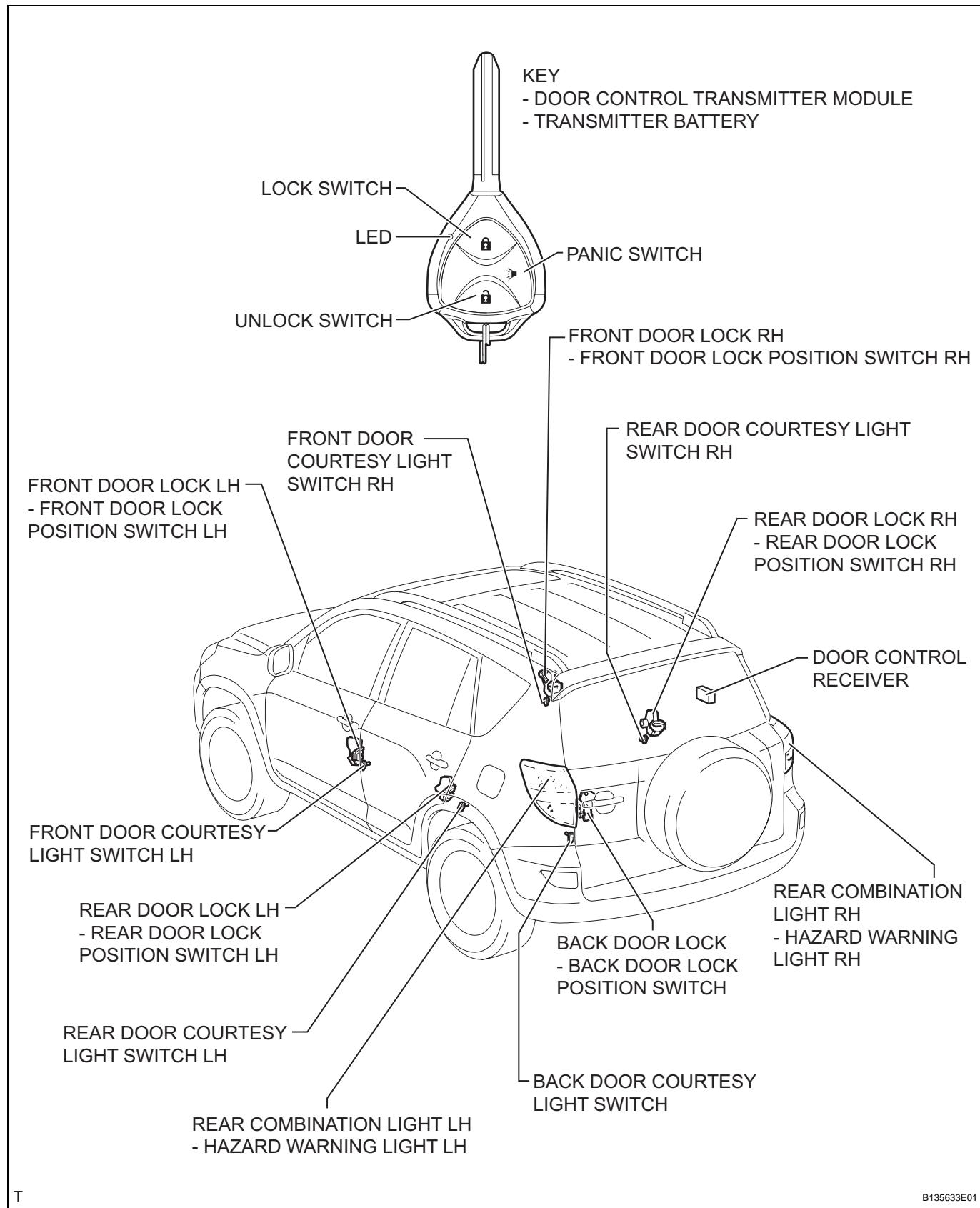


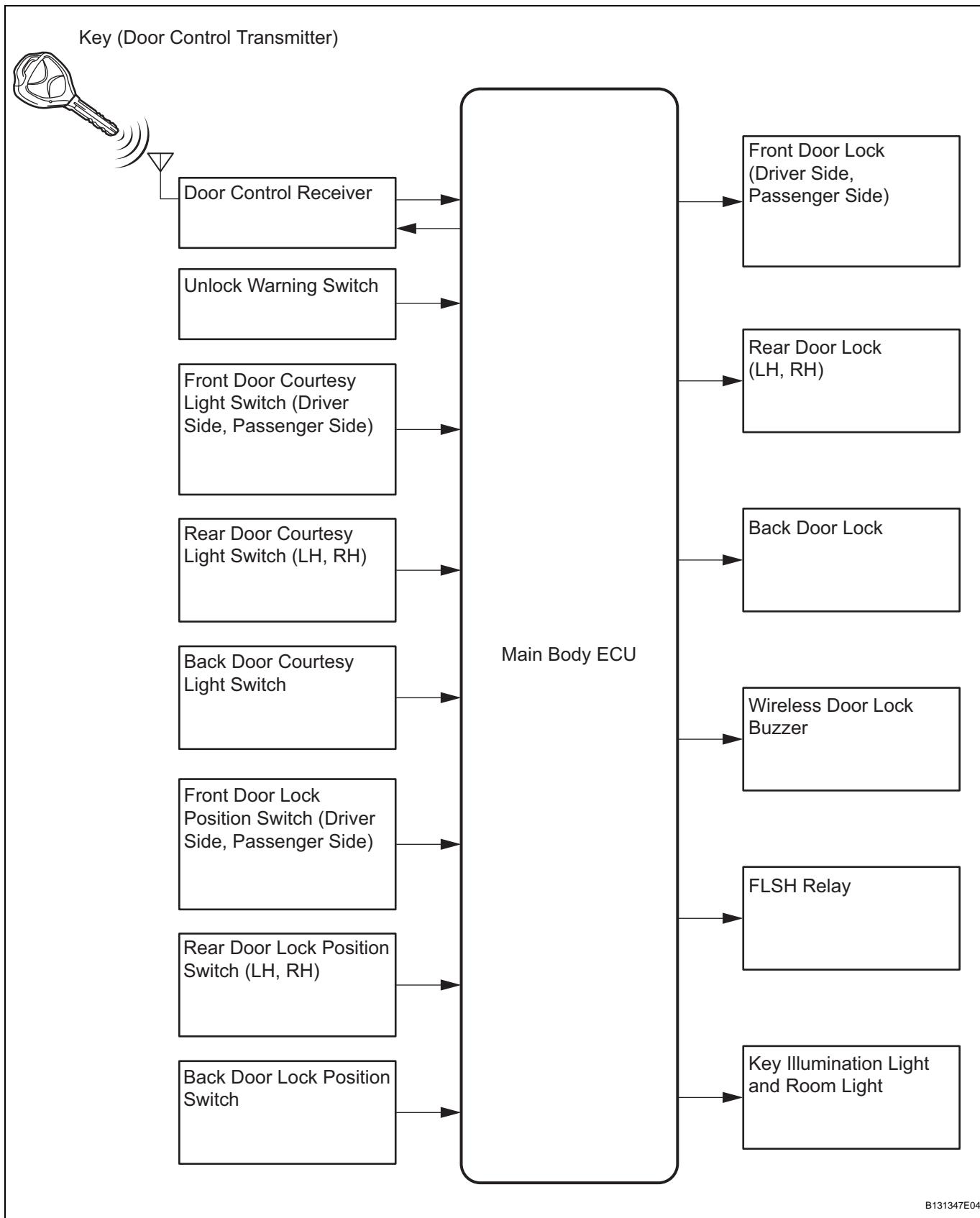
WIRELESS DOOR LOCK CONTROL SYSTEM

PARTS LOCATION





SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. WIRELESS DOOR CONTROL SYSTEM

DESCRIPTION

(a) This system locks and unlocks the vehicle's doors remotely. The wireless control system has the following features:

- The door control receiver performs the code identification procedure and the main body ECU operates the door lock control. A serial data link is provided for communication between the receiver and main body ECU.
- A key-integrated type transmitter is used and it contains the following 3 switches: the door lock switch, door unlock switch and panic alarm switch.
- An LED is built into the transmitter so that the battery status can be checked.

2. FUNCTION OF MAIN COMPONENTS

Components	Functions
Door control transmitter	<ul style="list-style-type: none"> • Contains LOCK, UNLOCK and PANIC switches • Transmits faint electric waves (recognition codes and function codes) to door control receiver • Illuminates indicator light (LED) during transmission
Door control receiver	Receives weak electric waves (recognition codes and function codes) from door control transmitter, and changes waves to code data
Door lock (door lock position switch)	Transmits door lock conditions of each door to main body ECU
Unlock warning switch	Detects if key is in ignition key cylinder
Door courtesy light switch	Turns ON when door is open and turns OFF when door is closed. Outputs door status (open or closed) to main body ECU.

3. SYSTEM FUNCTION

(a) Door lock / unlock function:

With no key in the ignition key cylinder (unlock warning switch is OFF) and all door courtesy light switches OFF, pressing the door control transmitter's LOCK / UNLOCK switch causes the transmitter to output faint electric waves. The transmitter sends a faint electrical wave to the door control receiver. The high frequency circuit built into the door control receiver demodulates the wave into code data, computes the data, and compares the data with previously registered ID codes. If the data is verified, a door lock / unlock request signal is output to the main body ECU. When the request signal is received, the main body ECU outputs a door lock / unlock control signal to each door lock. Each door lock then locks / unlocks its respective door and turns ON / OFF its door lock position switch in accordance with the signal.

DL

(b) Answer-back function:
The main body ECU receives the door unlock detection switch's ON / OFF signals and uses these signals to confirm if the door control operation has been completed. The main body ECU then outputs the hazard warning light control signals to flash the hazard warning lights as an answer-back indication and wireless door lock buzzer signals to cause the wireless door buzzer to sound as an answer-back.

(c) Panic function:
When the door control transmitter's PANIC switch is pressed, the main body ECU receives the code data (recognition codes and function codes) from the door control transmitter in the same way as when the LOCK / UNLOCK switch is pressed. Upon receiving a theft deterrent alarm control signal, the ECU sends a signal to sound the security horn, and transmits several kinds of warning control signals (hazard warning light control signal, vehicle horn warning control signal, and room light control signal) in order to output a theft deterrent alarm.

(d) The wireless door lock control system has the following functions.

Function	Outline
All door lock function	Pressing LOCK switch locks all doors
All door unlock operation (2 step unlock operation) function	Pressing UNLOCK switch twice within 3 seconds unlocks all doors after driver side door is unlocked
Answer-back function	<ul style="list-style-type: none"> Hazard warning lights flash once when doors are locked, and flash twice when doors are unlocked to indicate that operation has been completed Wireless door lock buzzer sounds once when doors are locked and sounds twice when doors are unlocked to inform that operation has been completed
Automatic locking function	If no doors are opened within 30 seconds after being unlocked by wireless transmitter, all doors are locked again automatically
Door ajar warning function	If any door is open or ajar, pressing LOCK switch will cause wireless door lock buzzer to sound for about 10 seconds
Illuminated entry function	<p>If locked doors are unlocked through wireless operation, ignition key cylinder light and room light illuminate. If one of following situations occurs, lights fade out:</p> <ul style="list-style-type: none"> Within 15 seconds, doors are not opened and doors are locked through wireless operation Within 15 seconds, key is inserted into ignition key cylinder and ignition switch is turned ON No operations or actions are performed within 15 seconds
Panic function	Pressing PANIC switch for more than 1 second sounds horn
Security function	Sends signal as rolling code
Transmitter recognition code registration function	Enables 4 modes for registering (writing and storing) transmitter recognition codes in EEPROM, built into door control receiver

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- The wireless door lock control system troubleshooting procedures are based on the premise that the power door lock system is operating normally. Check the power door lock system first before troubleshooting the wireless door lock control system (see page [DL-7](#)).
- Use these procedures to troubleshoot the wireless door lock control system.
- *: Use the intelligent tester.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3 PROBLEM SYMPTOMS TABLE

Result:

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B

Go to step 5

A

4 OVERALL ANALYSIS AND TROUBLESHOOTING*

DL

- (a) Operation Check (see page [DL-44](#))
- (b) DATA LIST / ACTIVE TEST (see page [DL-59](#))
- (c) Terminals of ECU (see page [DL-54](#))

NEXT

5	REPAIR OR REPLACE
---	-------------------

NEXT



6	CONFIRMATION TEST
---	-------------------

NEXT



END

OPERATION CHECK

1. NOTICES WHEN CHECKING

(a) Wireless door LOCK / UNLOCK function:

This function operates only when the vehicle is in its initial condition (the following 3 conditions are met).

- No key is inserted into the ignition key cylinder.
- All the doors are closed.
- The power door lock system is functioning normally.

HINT:

- The UNLOCK function operates even when one of the doors is open.
- The UNLOCK function operates even when the key is inserted into the ignition key cylinder. However, the ignition switch must be OFF.

(b) The operating range differs depending on the situation.

- The operating range differs depending on the user, the way the transmitter is held and the location.
- In certain areas, the operating range will be reduced due to the vehicle body shape and the influence of the surrounding environment.
- The transmitter's faint electric waves may be affected if the area has strong electric waves or noise. The transmitter's operating range may be reduced or the transmitter may not function.
- When the battery weakens, the operating range is reduced or the transmitter may not function.

HINT:

If the transmitter has had prolonged exposure to direct sunlight, such as being left on the instrument panel, the battery may weaken or other problems may occur.

2. CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

HINT:

- The switches described below transmit signals and are built into the door control transmitter.
- The transmitter's operating range must be taken into account while checks are being made.

(a) Make sure the vehicle is in a condition in which the wireless control functions can be operated (see above).

(b) Check the basic functions:

- Check that the transmitter's LED illuminates 3 times when each switch is pressed 3 times.

HINT:

If the LED does not illuminate when the switch has been pressed 3 times or more, the battery may be depleted.

DL

- (c) Check the chattering prevention function:
 - When a switch is pressed, check that the corresponding operation occurs only once. When the switch is held down, check that the corresponding operation occurs only once and does not repeatedly activate. Lastly, when the switch is pressed at 1 second intervals, check that the corresponding operation activates once for each press of the switch.
- (d) Check the automatic locking function:
 - When all doors are unlocked with the UNLOCK switch and none of the doors are opened or locked within 30 seconds, check that the doors are relocked automatically.
- (e) Check the switch operation fail-safe function:
 - If the key is in the ignition key cylinder, check that the doors cannot be locked by the LOCK switch. However, this does not apply when the system is in recognition code registration mode.
- (f) Check the door ajar warning function:
 - If a door is open or not completely closed, check that the doors cannot be locked by the LOCK switch and that the wireless door lock buzzer sounds for 10 seconds.
- (g) Check the answer-back function:
 - When the LOCK switch is pressed, confirm the simultaneous occurrence of all the hazard warning lights flashing once, the buzzer sounding once and all the doors locking.
 - When the UNLOCK switch is pressed, confirm the simultaneous occurrence of all the hazard warning lights flashing twice, the buzzer sounding twice and the driver side door unlocking.
 - When UNLOCK switch is pressed again within 3 seconds, conform the simultaneous occurrence of all the hazard warning lights flashing twice, the buzzer sounding twice and all the doors unlocking.
- (h) Check the illuminated entry function:
 - When all the doors are locked, pressing the UNLOCK switch causes the room light (when the light switch is in the DOOR position) to illuminate simultaneously with the unlock operation.
 - Check that the room light turns off in approximately 15 seconds if doors have not been opened.

- (i) Check the panic function:
 - Check that if PANIC switch is held down for 0.8 seconds or more, the theft deterrent alarm function sounds the horn and flashes the headlights and taillights for 60 seconds. And, with the theft alarm function active, check if pressing any switch on the transmitter causes the horn to stop sounding and the headlights and taillights to stop flashing.
- (j) All door unlock operation function (2 step unlock function).
 - Pressing the UNLOCK switch twice within 3 seconds unlocks all the doors after the driver side door is unlocked.

REGISTRATION

1. DESCRIPTION OF CODE REGISTRATION

HINT:

- Recognition code registration is necessary when replacing the door control transmitter and/or the door control receiver.
- Add mode is used to register new recognition codes while still retaining codes already registered. This mode is used when a new transmitter is added. If the number of registered codes exceeds 5, the previously registered codes will be erased in order, starting from the first registered code.
- Rewrite mode is used to erase all the previously registered recognition codes in order to register new recognition codes. This mode is used when the transmitter or the door control receiver is exchanged for a new one.
- Confirmation mode is used to confirm how many recognition codes have already been registered before registering any additional recognition codes.
- Prohibition mode is used to erase all the registered codes and disables the wireless door lock function. This mode is used when the transmitter is lost.
- All of the following registration procedures must be performed in order and in a continuous sequence.

2. REGISTER RECOGNITION CODE (USING INTELLIGENT TESTER)

HINT:

For detailed procedures, refer to the prompts on the tester screen. The number of currently registered codes can be checked out on the first screen of the WIRELESS REGIST.

- Turn the ignition switch ON.
- Select the menu on the intelligent tester.

HINT:

After the following operations, proceed to the succeeding operations according to the prompts on the tester screen.

- Select "RAV4" from the menu.
- Select "MAIN BODY".
- Select "WIRELESS REGIST".

- Press both LOCK and UNLOCK switches between 1 to 1.5 seconds.
- Press either switch for more than 1 second within 3 seconds.

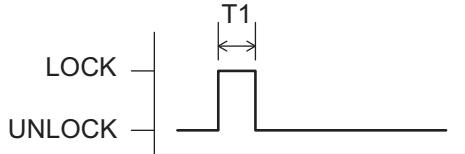
(e) Check the response to the registration completion.

Response to registration completion:

Main body ECU automatically performs power door LOCK-UNLOCK operation to show whether registration has been completed correctly or not.

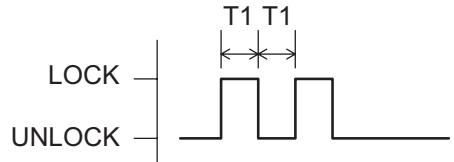
LOCK-UNLOCK Occurs Once

Registration of recognition code has been completed.



LOCK-UNLOCK Occurs Twice

Registration of recognition code has failed.



T1: Approx. 1 second

B111915E05

HINT:

- If the LOCK-UNLOCK operation occurs twice, the registration of recognition code has failed. Perform the registration procedures again from the beginning.
- If registering another transmitter, repeat the procedures after the tester operation. All 4 recognition codes can be registered consecutively.

(f) Perform either of the following to complete the registration of recognition codes:

- Use the intelligent tester to send completion command.
- Disconnect the intelligent tester.

3. REGISTER RECOGNITION CODE (USING SWITCH OPERATION)

(a) The following conditions should be met.

- No key in the ignition key cylinder.
- The driver side door is open (the other doors are closed).
- The driver side door is unlocked.

(b) Insert and remove the key into / from the ignition key cylinder twice (Insert → Remove → Insert → Remove) within 5 seconds.

HINT:

The procedure should end with the key removed.

(c) Perform the following operations within 40 seconds.

- (1) Close and open the driver side door twice (Close → Open → Close → Open).

HINT:

The procedure should end with the door open.

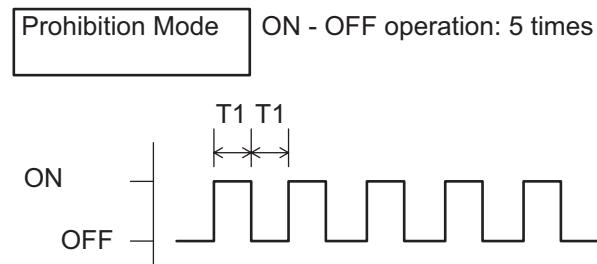
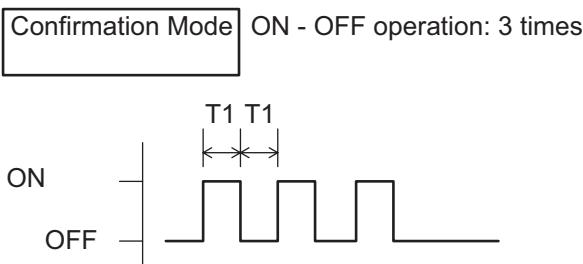
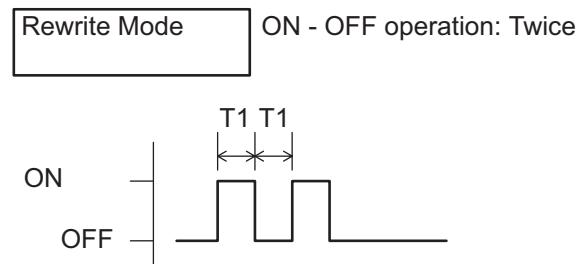
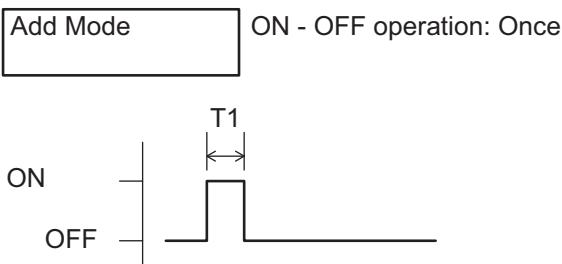
DL

- (2) Insert and remove the key into / from the ignition key cylinder (Insert → Remove).
HINT:
The procedure should end with the key removed.
- (3) Close and open the driver side door twice (Close → Open → Close → Open).
HINT:
The procedure should end with the door open.
- (4) Insert the key into the ignition key cylinder and close all doors.

(d) Perform the following operations within 40 seconds.

- (1) Turn the ignition switch from ON to OFF at approximately 1 second intervals, operate the ignition switch according to the number of times shown below.

Number of ON - OFF operations of ignition switch:



T1: Approx. 1 second

B111914E07

HINT:

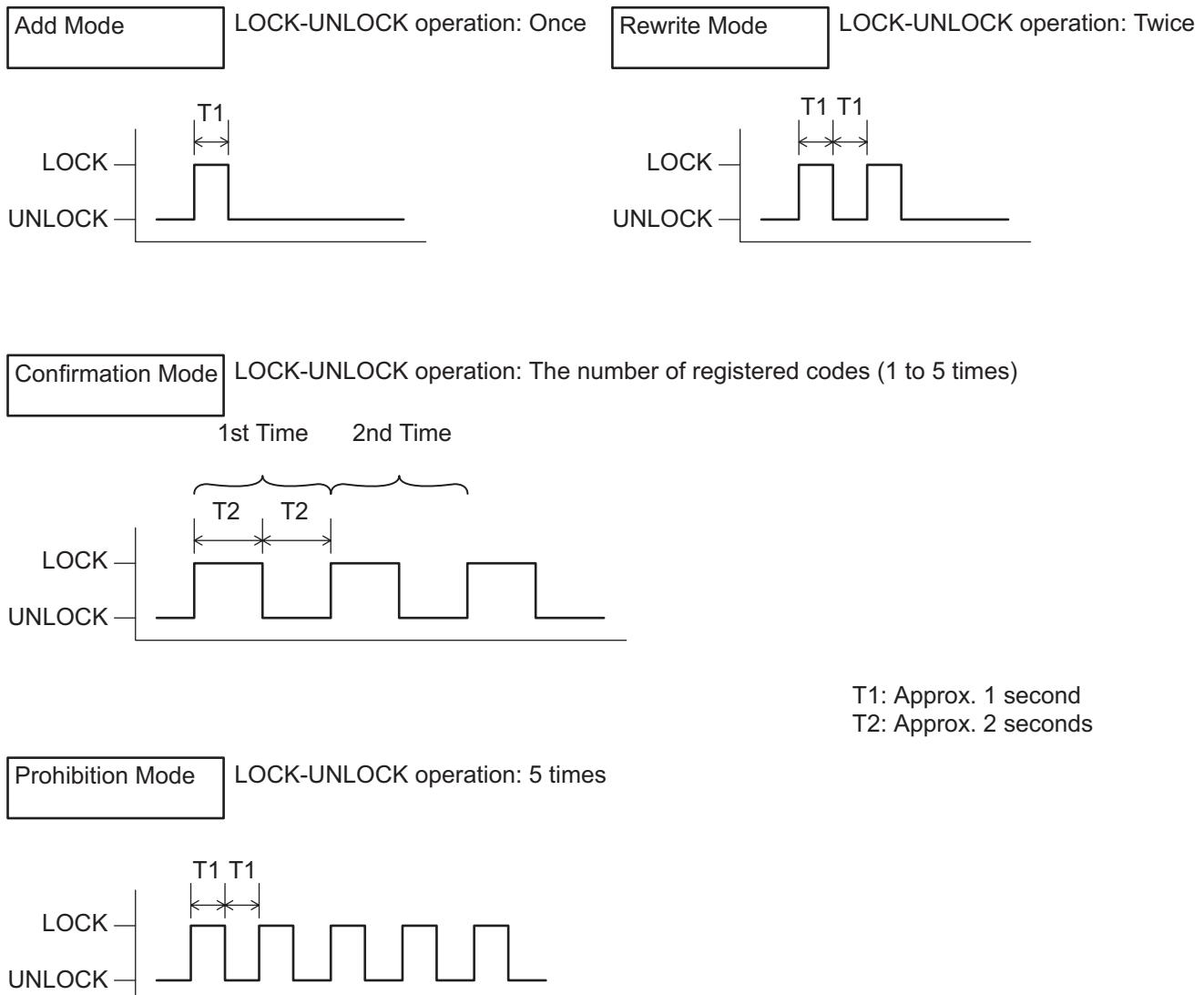
If the number of ignition switch ON - OFF operations is 0, 4, 6 or more, there will be no response (the power door lock and unlock operation) to show which mode has been selected.

- (2) Remove the key from the ignition key cylinder.

(e) Check the response of the selected mode within 5 seconds.

Response to selected mode (power door lock operation):

Main body ECU automatically performs power door LOCK-UNLOCK operations to indicate which mode has been selected.



NOTICE:

After the system has been set to the prohibition mode, enter the confirmation mode and check that the number of registered keys is 0.

HINT:

- In the confirmation mode, LOCK-UNLOCK operation will occur once for each recognition code that has been registered. For example, if 2 recognition codes have been registered, LOCK-UNLOCK operation will occur twice.
- In the confirmation mode, if no recognition codes have been registered, LOCK-UNLOCK operation will occur 5 times.
- If confirmation mode or prohibition mode is selected, the operation ends after the response to the selected mode completes.

(f) Within 40 seconds of completing the confirmation mode operation, press the LOCK and UNLOCK switches on the transmitter simultaneously.

(g) After completing the above step, press a single switch (LOCK or UNLOCK) within 5 seconds.

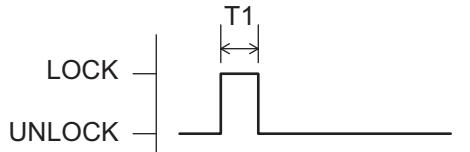
(h) After completing the above step, check the response to the registration completion within 3 seconds.

Response to registration completion:

Main body ECU automatically performs power door LOCK-UNLOCK operation to show whether registration has been completed correctly or not.

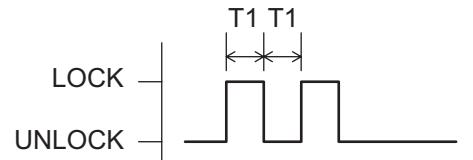
LOCK-UNLOCK Occurs Once

Registration of recognition code has been completed.



LOCK-UNLOCK Occurs Twice

Registration of recognition code has failed.



T1: Approx. 1 second

B111915E06

HINT:

- If the LOCK-UNLOCK operation occurs twice, the registration of recognition code has failed. Perform registration procedures again from the beginning.

- If registering another transmitter, repeat the procedures after the response to the selected mode confirmation. All 4 recognition codes can be registered consecutively.

(i) Perform either of the following to complete the registration of recognition codes:

- Open the door.
- Insert the key into the ignition key cylinder.

CUSTOMIZE PARAMETERS

1. CUSTOMIZING FUNCTION WITH INTELLIGENT TESTER (REFERENCE)

HINT:

The following items can be customized.

NOTICE:

- When the customer requests a change in a function, first make sure that the function can be customized.
- Record the current settings before customizing.
- When troubleshooting a function, first make sure that the function is set to the default setting.

Wireless door lock control system:

Display (Item)	Default	Contents	Setting
HAZARD ANS BACK	ON	When LOCK switch on transmitter pressed, all hazard warning lights illuminate once. When UNLOCK switch pressed, all hazard warning lights illuminate twice	ON / OFF
WIRLS BUZZ OPER	ON	Function that makes wireless buzzer sound for answer-back when transmitter LOCK / UNLOCK switch pressed	ON / OFF
OPEN DOOR WARN	ON	If door is not completely closed and transmitter LOCK switch is pressed, this function sounds a buzzer for 10 seconds	ON / OFF
WIRELESS OPER	ON	ON / OFF of wireless door lock function	ON / OFF
ALARM FUNCTION	ON	Operates security alarm when PANIC switch on transmitter continuously pressed for 1 second	ON / OFF
UNLOCK / 2 OPER	ON	Function that unlocks driver side door when unlock switch on transmitter is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	ON / OFF
AUTO LOCK DELAY	30s	This function controls amount of time from unlocking doors to automatic re-locking function	30s / 60s

PROBLEM SYMPTOMS TABLE

HINT:

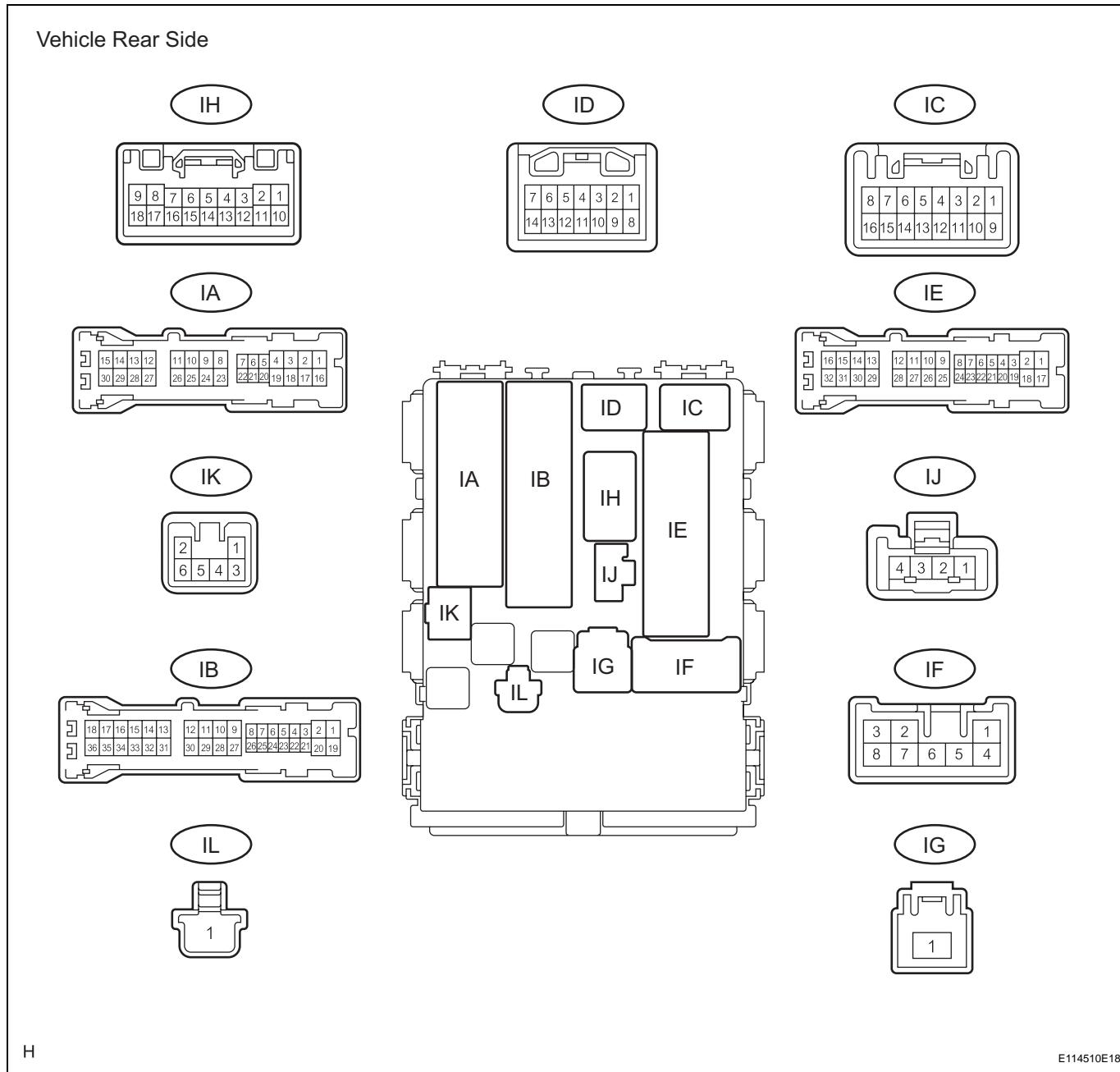
- Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Are" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Wireless door lock control system:

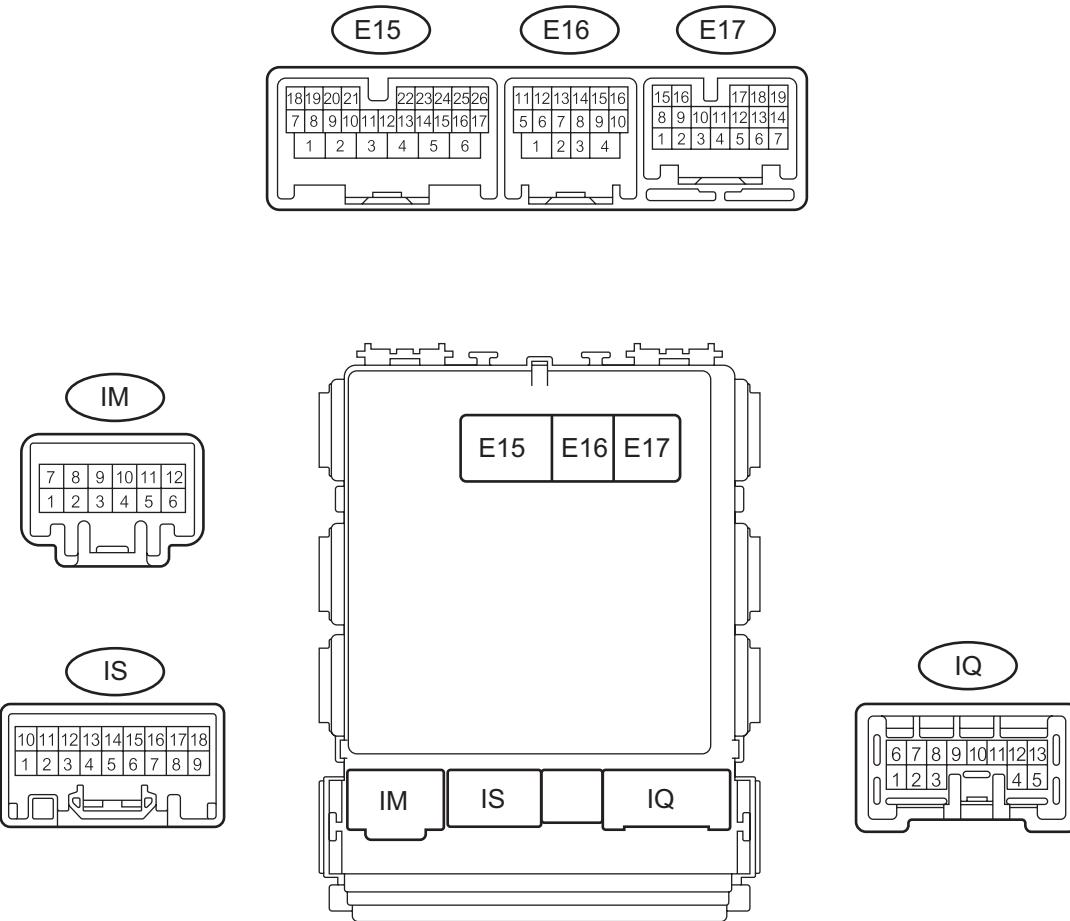
Symptom	Suspected area	See page
Only wireless control function is inoperative	1. Door control transmitter module	DL-64
	2. Transmitter battery	DL-64
	3. Lighting system	DL-64
	4. Instrument panel junction block (main body ECU)	DL-64
	5. Door control receiver	DL-64
	6. Unlock warning switch	DL-64
	7. Wire harness	DL-64
No answer-back	1. Instrument panel junction block (main body ECU)	DL-73
	2. Lighting system	DL-73
	3. Wireless door lock buzzer	DL-73
	4. Wire harness	DL-73

TERMINALS OF ECU

1. CHECK INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)



Vehicle Front Side



H

B108612E11

- (a) Disconnect the IB and IE junction block connectors.
- (b) Measure the resistance and voltage of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND1 (IE-17) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
BECU (IB-30) - GND1 (IE-17)	R - W-B	Battery (power supply)	Always	10 to 14 V

If the result is not as specified, there may be a malfunction in the wire harness.

- (c) Reconnect the IB and IE junction block connectors.

DL

(d) Measure the voltage of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
KSW (IE-26) - GND1 (IE-17)	L - W-B	Key unlock warning switch input	Key inserted	10 to 14 V
			No key in ignition key cylinder	Below 1 V
DCTY (IA-21) - Body ground	W - Body ground	Driver side door courtesy switch input	Driver side door closed	10 to 14 V
			Driver side door open	Below 1 V
PCTY (IC-14) - Body ground	BR - Body ground	Passenger side door courtesy switch input	Passenger side door closed	10 to 14 V
			Passenger side door open	Below 1 V
RRCY (ID-7) - Body ground	LG - Body ground	Rear RH door courtesy switch input	Rear RH door closed	10 to 14 V
			Rear RH door open	Below 1 V
LCTY (E15-8) - Body ground	SB - Body ground	Rear LH door courtesy switch input	Rear LH door closed	10 to 14 V
			Rear LH door open	Below 1 V
BCTY (IA-7) - Body ground	LG - Body ground	Back door courtesy switch input	Back side door closed	10 to 14 V
			Back side door open	Below 1 V
L1 (IH-4) - Body ground	P - Body ground	Door lock motor LOCK drive output	Master switch (door control switch) OFF	Below 1 V
			Master switch (door control switch) ON (LOCK)	10 to 14 V → Below 1 V
UL1 (IH-5) - Body ground	B - Body ground	Door lock motor UNLOCK drive output	Master switch (door control switch) OFF	Below 1 V
			Master switch (door control switch) ON (UNLOCK)	10 to 14 V → Below 1 V
ACTD (E15-5) - Body ground	B - Body ground	Door lock motor UNLOCK drive output	Master switch (door control switch) or driver side door key cylinder OFF	Below 1 V
			Master switch (door control switch) or driver side door key cylinder ON (UNLOCK)	10 to 14 V → Below 1 V
ACT+ (IH-8) - Body ground	R - Body ground	Door lock motor LOCK drive output	Master switch (door control switch) or driver side door key cylinder OFF	Below 1 V
			Master switch (door control switch) or driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V
ACT- (IH-18) - Body ground	B - Body ground	Door lock motor UNLOCK drive output	Master switch (door control switch) or driver side door key cylinder OFF	Below 1 V
			Master switch (door control switch) or driver side door key cylinder ON (UNLOCK)	10 to 14 V → Below 1 V
LSWD (E15-25) - Body ground	Y - Body ground	Driver side door lock position switch input	Driver side door UNLOCK	Below 1 V
			Driver side door LOCK	10 to 14 V
LSWP (E15-10) - Body ground	Y - Body ground	Passenger side door lock position switch input	Passenger side door UNLOCK	Below 1 V
			Passenger side door LOCK	10 to 14 V
UL3 (E15-9) - Body ground	LG - Body ground	Door lock motor UNLOCK drive output	Driver side door key cylinder OFF	Below 1 V
			Driver side door key cylinder ON (UNLOCK)	10 to 14 V → Below 1 V

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
L2 (IH-7) - Body ground	SB - Body ground	Door lock motor LOCK drive output	Master switch or driver side door key cylinder OFF	Below 1 V
			Master switch or driver side door key cylinder ON (LOCK)	10 to 14 V → Below 1 V
PRG (E17-6) - Body ground	Y - Body ground	Door control receiver output	Transmitter switch ON → OFF (No key in ignition key cylinder, all doors closed)	6 to 7 V → Below 1 V → 6 to 7 V
RDA (E17-5) - Body ground	G - Body ground	Door control receiver input	Transmitter switch ON → OFF (No key in ignition key cylinder, all doors closed)	Below 1 V → 6 to 7 V → Below 1 V
HAZ (IS-17) - Body ground	GR- Body ground	Hazard warning light signal	Answer-back ON	Pulse generation
			Answer-back OFF	Below 1 V
BZR (E17-2) - Body ground	L- Body ground	Wireless door lock buzzer signal	Answer-back ON	Pulse generation
			Answer-back OFF	Below 1 V

If the result is not as specified, the junction block (ECU) may have a malfunction.

DIAGNOSIS SYSTEM

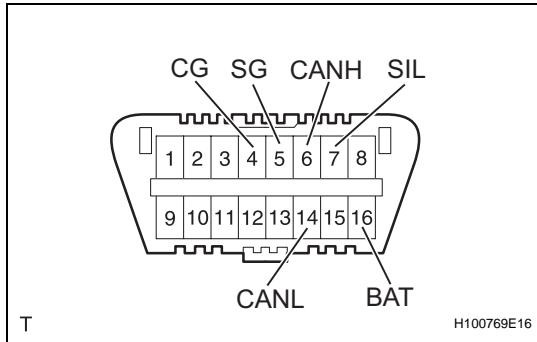
1. DESCRIPTION

(a) Wireless door lock control system data and Diagnostic Trouble Codes (DTCs) can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

2. CHECK DLC3

The vehicle's ECU uses the ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch off*	54 to 69 Ω
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch off*	1 k Ω or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch off*	1 k Ω or higher
CANL (14) - Battery positive	LOW-level CAN bus line	Ignition switch off*	1 M Ω or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch off*	1 M Ω or higher

NOTICE:

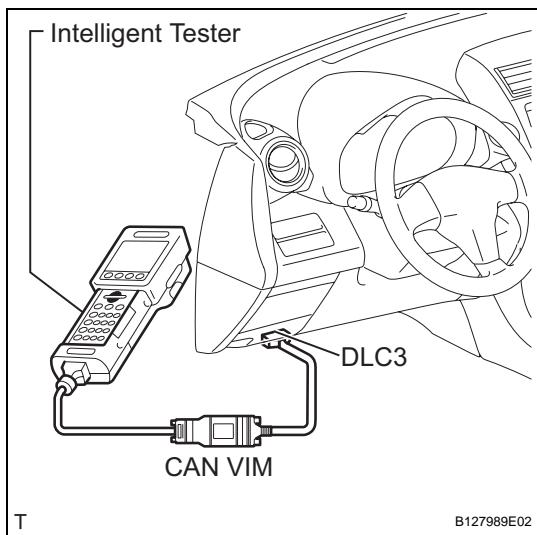
***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, other switches or doors.**

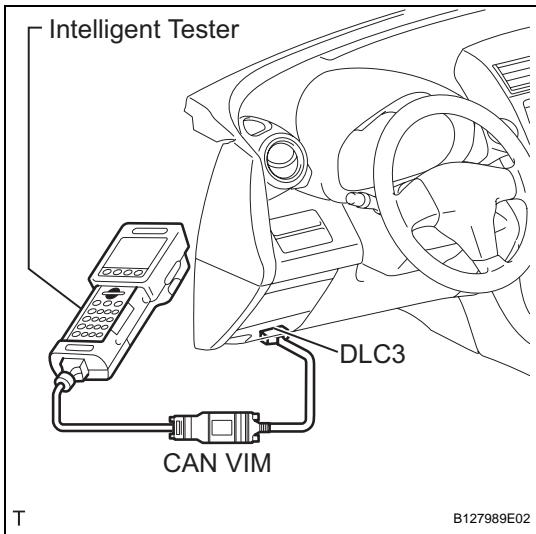
HINT:

Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the ignition switch ON and attempt to use the intelligent tester. If the screen displays UNABLE TO CONNECT TO VEHICLE, a problem exists in the vehicle side or the tester side.

If the communication is normal when the tester is connected to another vehicle, inspect the DLC3 on the original vehicle.

If the communication is still not possible when the tester is connected to another vehicle, the problem is probably in the tester itself. Consult the Service Department listed in the tester's instruction manual.





DTC CHECK / CLEAR

1. CHECK DTC

- Connect the intelligent tester (with CAN VIM) to the DLC3.
- Turn the ignition switch ON and turn the intelligent tester ON.
- Select the following menu items: DIAGNOSIS / OBD/MOBD / MAIN BODY / DTC INFO / CURRENT CODES.
- Check DTCs and then write them down.

HINT:

Refer to the intelligent tester operator's manual for further details.

- Confirm the details of the DTCs (see page [DL-60](#)).

2. CLEAR DTC

- Connect the intelligent tester (with CAN VIM) to the DLC3.
- Turn the ignition switch ON (do not start the engine) and turn the intelligent tester ON.
- Select the following menu items: DIAGNOSIS / OBD/MOBD / MAIN BODY / DTC INFO / CLEAR CODES.

HINT:

Refer to the intelligent tester operator's manual for further details.

- Erase DTCs by pressing the YES button on the tester.

HINT:

Refer to the intelligent tester operator's manual for further details.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

Using the intelligent tester's DATA LIST allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Select the following menu items: DIAGNOSIS / OBD/MOBD / MAIN BODY / DATA LIST.
- (d) Check the results by referring to the table below.

Main body ECU:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver side door courtesy light switch signal / ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
D LOCK POS SW	Driver side door lock position switch signal / ON or OFF	ON: Driver side door is unlocked OFF: Driver side door is locked	-
D/L SW-LOCK	Door manual lock switch signal / ON or OFF	ON: Door control switch (for front driver door side) is turned to lock position OFF: Door control switch (for front driver door side) is turned to unlock position	-
D/L SW-UNLOCK	Door manual unlock switch signal / ON or OFF	ON: Door control switch (for front driver door side) is turned to unlock position OFF: Door control switch (for front driver door side) is turned to lock position	-
DOR KEY SW-LOCK	Door key linked lock switch signal / ON or OFF	ON: Driver side door key cylinder is turned to lock position OFF: Driver side door key cylinder is turned to unlock position	-
D DOR KEY SW-UL	Driver side door key linked unlock switch signal / ON or OFF	ON: Driver side door key cylinder is turned to unlock position OFF: Driver side door key cylinder is turned to lock position	-
P DOR CTY SW	Passenger side door courtesy light switch signal / ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	-
P LOCK POS SW	Passenger side door lock position switch signal / ON or OFF	ON: Passenger side door is unlocked ON: Passenger side door is locked	-
RR DOR CTY SW	Rear door RH courtesy light switch signal / ON or OFF	ON: Rear door RH is open OFF: Rear door RH is closed	-
RL DOR CTY SW	Rear door LH courtesy light switch signal / ON or OFF	ON: Rear door LH is open OFF: Rear door LH is closed	-
BK DOR CTY SW	Back door courtesy light switch signal / ON or OFF	ON: Back door is open OFF: Back door is closed	-
KEY UNLK WRN SW	Unlock warning switch / ON or OFF	ON: Ignition key is inserted OFF: Ignition key is not inserted	-

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's ACTIVE TEST allows relays, VSV, actuators and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time. The DATA LIST can be displayed during the ACTIVE TEST.

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Select the following menu items: DIAGNOSIS / OBD/MOBD / MAIN BODY / ACTIVE TEST.
- (d) Perform the ACTIVE TEST by referring to the table below.

Main body ECU:

Tester Display	Test Part	Control Range
DOOR LOCK	Operate door lock motor LOCK / UNLOCK	-
D DOOR UNLOCK	Operate driver door lock motor unlock side ON / OFF	-
VEHICLE HORN	Sounds vehicle horn ON / OFF	-
HAZARD	Turns FLSH relay ON / OFF	-

DIAGNOSTIC TROUBLE CODE CHART

DTC No.	Detection Item	Trouble Area	See page
B1242	Wireless Door Lock Tuner Circuit Malfunction	<ul style="list-style-type: none">- Wire harness- Door control receiver- Instrument panel junction block (main body ECU)	DL-61

DTC

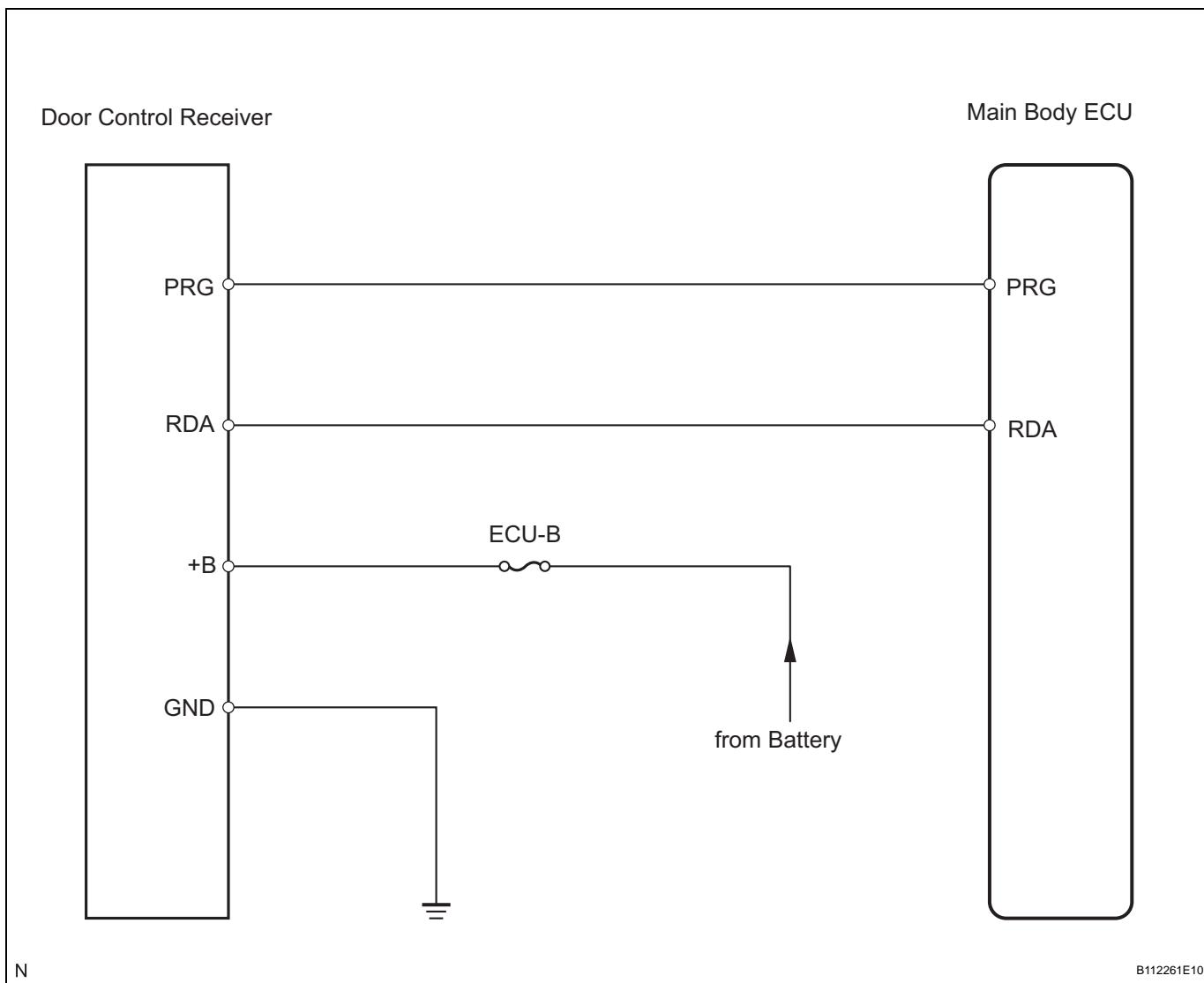
B1242

Wireless Door Lock Tuner Circuit Malfunction

DESCRIPTION

The door control receiver receives signals from the transmitter and sends these signals to the main body ECU. This DTC is output when the applicable RDA signal cannot be received within 1 second of PRG signal being output from the main body ECU.

DTC No.	DTC Detection Condition	Trouble Area
B1242	In diagnostic mode, applicable RDA signal cannot be received within 1 second of PRG signal being output from main body ECU	<ul style="list-style-type: none"> Wire harness Door control receiver Instrument panel junction block (main body ECU)

WIRING DIAGRAM

DL

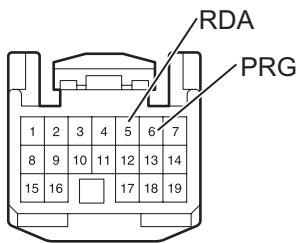
N

B112261E10

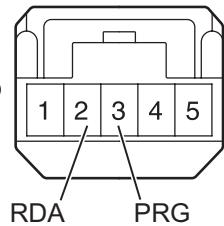
INSPECTION PROCEDURE

1 CHECK WIRE HARNESS (MAIN BODY ECU - DOOR CONTROL RECEIVER)

Wire Harness Side

Instrument Panel Junction Block
(Main Body ECU)

Door Control Receiver



B130249E01

- (a) Disconnect the E17 ECU connector.
- (b) Disconnect the L18 receiver connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
E17-5 (RDA) - L18-2 (RDA)	Below 1 Ω
E17-6 (PRG) - L18-3 (PRG)	
E17-5 (RDA) or L18-2 (RDA) - Body ground	
E17-6 (PRG) or L18-3 (PRG) - Body ground	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

2 CHECK WIRE HARNESS (DOOR CONTROL RECEIVER - BATTERY AND BODY GROUND)

Wire Harness Side

- (a) Disconnect the L18 receiver connector.
- (b) Measure the resistance and voltage of the wire harness side connector.

Standard resistance

Tester Connection	Specified Condition
L18-1 (GND) - Body ground	Below 1 Ω

Standard voltage

Tester Connection	Specified Condition
L18-5 (+B) - Body ground	10 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

B129963E01

DL

OK

3 REPLACE DOOR CONTROL RECEIVER

- (a) Temporarily replace the door control receiver with a new or normally functioning one.
- (b) Perform the REGISTRATION procedures (see page [DL-46](#)).

NEXT

4 CHECK FOR DTC

- (a) Clear the DTC (see page [DL-58](#)).
- (b) Recheck for DTC.

OK:

DTC B1242 is not output.

NG

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

OK

END (DOOR CONTROL RECEIVER IS DEFECTIVE)

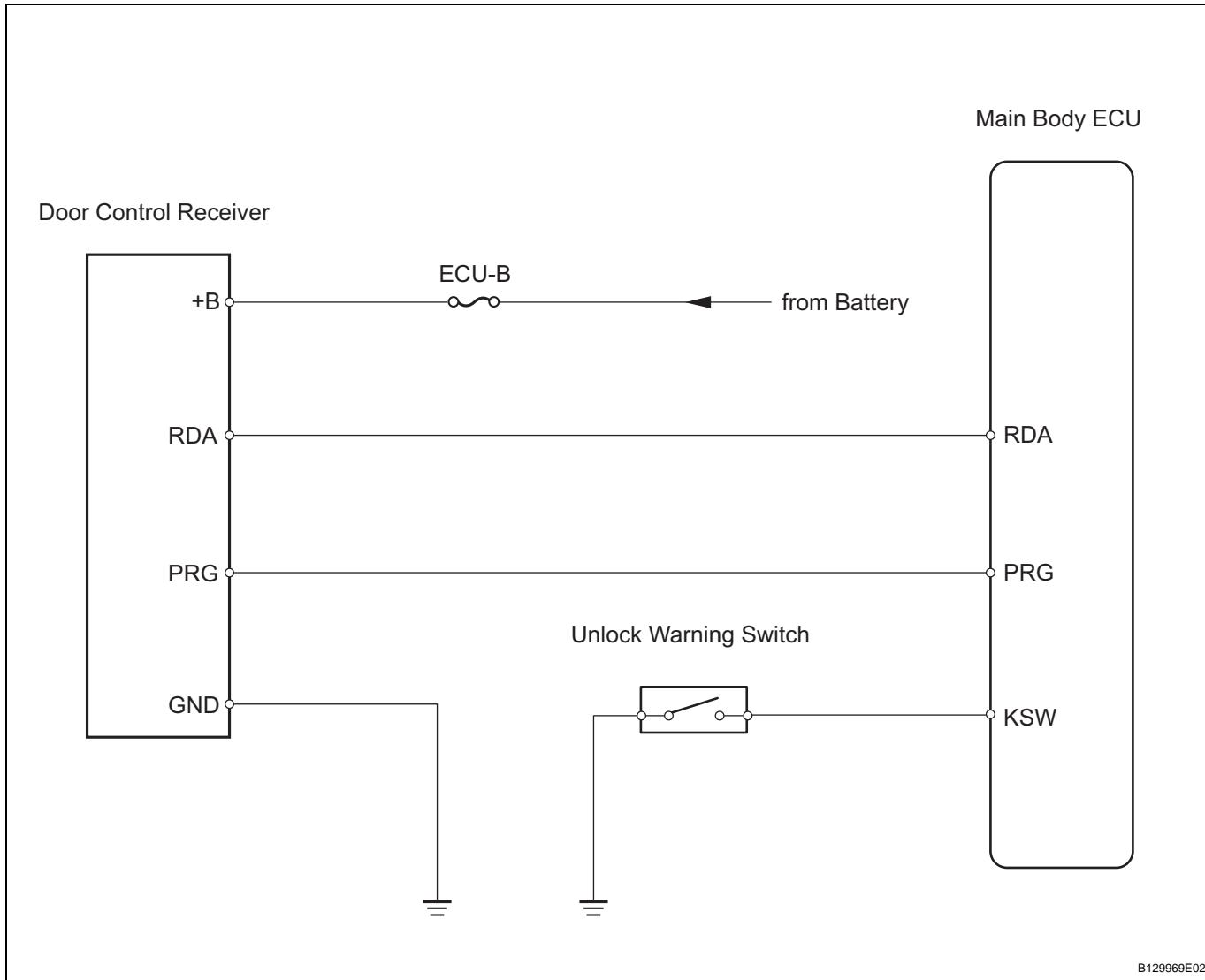
DL

Only Wireless Control Function is Inoperative

DESCRIPTION

The door control receiver receives signals from the transmitter and sends these signals to the main body ECU. The main body ECU then controls all doors by sending lock / unlock signals to each door, and sends hazard flasher relay signals to the turn signal flasher relay (hazard warning lights).

WIRING DIAGRAM



DL

INSPECTION PROCEDURE

1 CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS

(a) Check the wireless door lock control functions (see page [DL-44](#)).

OK:

Each function of wireless door lock control system operates normally using transmitter switch.

OK

END

NG

2 CHECK TRANSMITTER LED ILLUMINATION

(a) Check that the transmitter's LED illuminates 3 times when the switch is pressed 3 times.

OK:

Transmitter's LED illuminates 3 times when switch is pressed 3 times.

NG

Go to step 4

OK

3 CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS (STANDARD OPERATION FUNCTION)

HINT:

Use the following standard test procedure to check the transmitter again.

(a) Hold the transmitter approximately 1 m (3.28 ft.) from the driver side door outside handle. The transmitter must be held parallel to the ground and perpendicular to the side of the vehicle.

(b) Press and hold either the LOCK or UNLOCK transmitter switch for 1 second, and check that the doors are locked or unlocked accordingly.

OK:

Doors can be locked and unlocked with transmitter switches.

NG

Go to step 5

OK

4 CHECK TRANSMITTER BATTERY (OPERATION)

(a) Temporarily replace the transmitter battery with a new or normally functioning one. (see page **DL-89**)

(b) Check that the doors can be locked and unlocked using the transmitter switches.

OK:

Doors can be locked and unlocked with transmitter.

NG

REPLACE DOOR CONTROL TRANSMITTER MODULE

OK

DL

END (TRANSMITTER BATTERY IS DEFECTIVE)

5 CHECK ROOM LIGHT (WIRELESS DOOR LOCK BUZZER)

- (a) Check that the room light illumination operates normally.
- (b) Inspect the wireless door lock buzzer (see page DL-79).

Result:

Result	Proceed to
Room light and wireless door lock buzzer is normally	A
Room light is malfunction	B
Wireless door lock buzzer is malfunction	C

B

Go to LIGHTING SYSTEM

C

REPLACE WIRELESS DOOR LOCK BUZZER

A

6 SWITCH TO SELF-DIAGNOSTIC MODE

- (a) Switch to self-diagnostic mode by operating the ignition key cylinder.
 - (1) Make sure the vehicle is in its initial condition. Then insert the key into the ignition key cylinder and remove it.
 - (2) Within 5 seconds of removing the key, insert the key into the ignition key cylinder (ignition switch OFF). Then turn the ignition switch ON and OFF.
 - (3) Within 30 seconds of turning the ignition switch OFF, perform the following operation 9 times: turn the ignition switch ON and OFF.

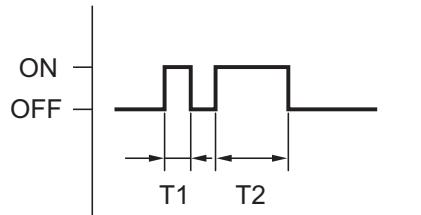
NOTICE:

If the system cannot enter self-diagnostic mode, the system returns to normal mode.

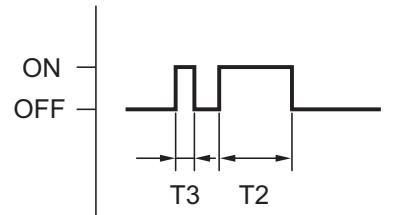
HINT:

- Turning the ignition switch ON after the above operations have been completed ends self-diagnostic mode.
- Do not lock or unlock doors during self-diagnostic mode.

Room Light Output



Wireless Door Lock Buzzer Output



B137621E01

(b) Check that the system has switched to self-diagnostic mode by checking the room light flash (wireless door lock buzzer sound) pattern.

OK:

Flash (sound) pattern is same as illustration.

NG

Go to step 11

OK

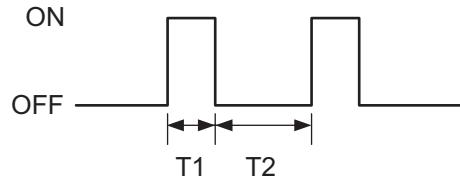
DL

7

CHECK BY SELF DIAGNOSTIC MODE

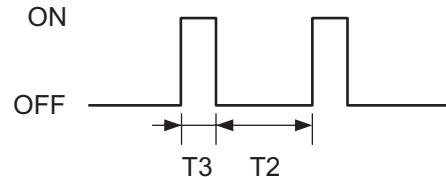
Recognition code registered

Light Output



Recognition code registered

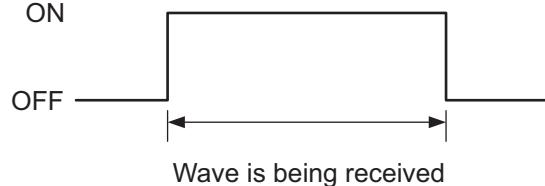
Buzzer Output



T1: 0.25 sec.
 T2: 0.5 sec.
 T3: 0.13 sec.

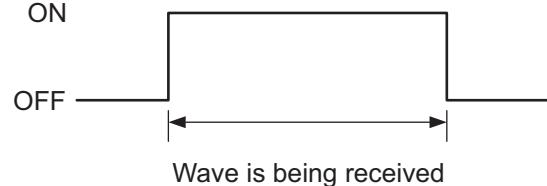
Unmatching recognition code

Light Output



Unmatching recognition code

Buzzer Output



No diagnosis outputs

Light Output



No diagnosis outputs

Buzzer Output



B137622E01

(a) Inspect the diagnosis outputs when the door control transmitter switch is held down. The diagnosis outputs can be checked by the flash patterns of the room light (wireless door lock buzzer).

Result:

Result	Proceed to
Unmatching recognition code is output	A

Result	Proceed to
Normal waves (light flash or buzzer sound patterns) is output	B
No diagnosis outputs	C



8 REGISTER RECOGNITION CODE

(a) Check that the system can be switched to rewrite mode or add mode, and that a recognition code can be registered (see page [DL-46](#)).

OK:

Recognition code can be registered.



END

9 CHECK DOOR CONTROL RECEIVER (RESPONSE)

(a) Temporarily replace the door lock control transmitter with a new or normally functioning one (see page [DL-105](#)).

(b) Held down the door control transmitter's switch.

(c) Check that an unmatching recognition code is output.

OK:

Unmatching recognition code is output.



10 CHECK DOOR CONTROL RECEIVER (OPERATION)

(a) Temporarily replace the door lock control receiver with a new or normally functioning one (see page [DL-105](#)).

(b) Check that the doors can be locked and unlocked by using the transmitter LOCK and UNLOCK switches.

OK:

Doors can be locked and unlocked with transmitter.



DL

OK

END (DOOR CONTROL RECEIVER IS DEFECTIVE)

11 CONFIRM PROCEDURES TO ENTER SELF-DIAGNOSTIC MODE

Result:

Result	Proceed to
Self-diagnostic mode entry successful	A
Self-diagnostic mode entry unsuccessful	B

B

Go to step 6

A

12 INSPECT UNLOCK WARNING SWITCH ASSEMBLY

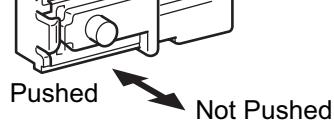
(a) Remove the switch.
 (b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Condition	Specified Condition
1 - 2	Not pushed	10 k Ω or higher
	Pushed	Below 1 Ω

NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY



B110401E01

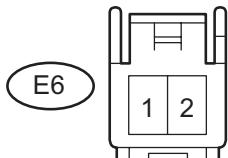
OK

DL

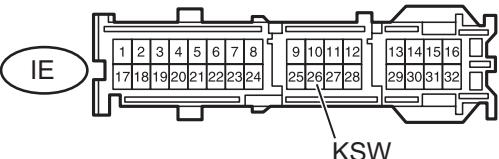
13 CHECK WIRE HARNESS (UNLOCK WARNING SWITCH - MAIN BODY ECU AND BODY GROUND)

Wire Harness Side

Unlock Warning Switch



Instrument Panel Junction Block (Main Body ECU)



B133177E01

OK

- (a) Disconnect the E6 receiver connector.
- (b) Disconnect the IE junction block connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
IE-26 (KSW) - E6-1	Below 1 Ω
E6-2 - Body ground	
IE-26 (KSW) or E6-1 - Body ground	10 kΩ or higher

NG

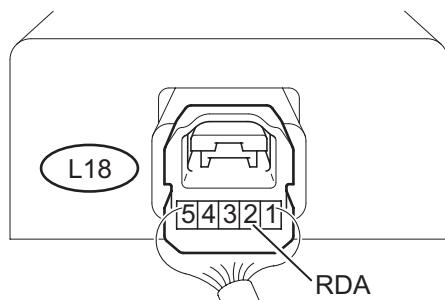
REPAIR OR REPLACE HARNESS AND CONNECTOR

14 CHECK DOOR CONTROL RECEIVER (OUTPUT)

- (a) Reconnect the L18 receiver connector.
- (b) Measure the voltage of the connector.

Standard voltage

Tester Connection	Condition	Specified Condition
L18-2 (RDA) - Body ground	Transmitter switch ON → OFF (No key in ignition key cylinder, all doors closed)	Below 1 V → 6 to 7 V → Below 1 V



B111368E15

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

DL

NG

15 CHECK DOOR CONTROL TRANSMITTER MODULE

- (a) Temporarily replace the door control transmitter module with a new or normally functioning one (see page [DL-92](#)).
- (b) Check that the doors can be locked and unlocked by using the transmitter LOCK and UNLOCK switches.

OK:

Doors can be locked and unlocked with transmitter.

NG

REPLACE DOOR CONTROL RECEIVER

OK

END (DOOR CONTROL TRANSMITTER MODULE IS DEFECTIVE)

DL

No Answer-Back

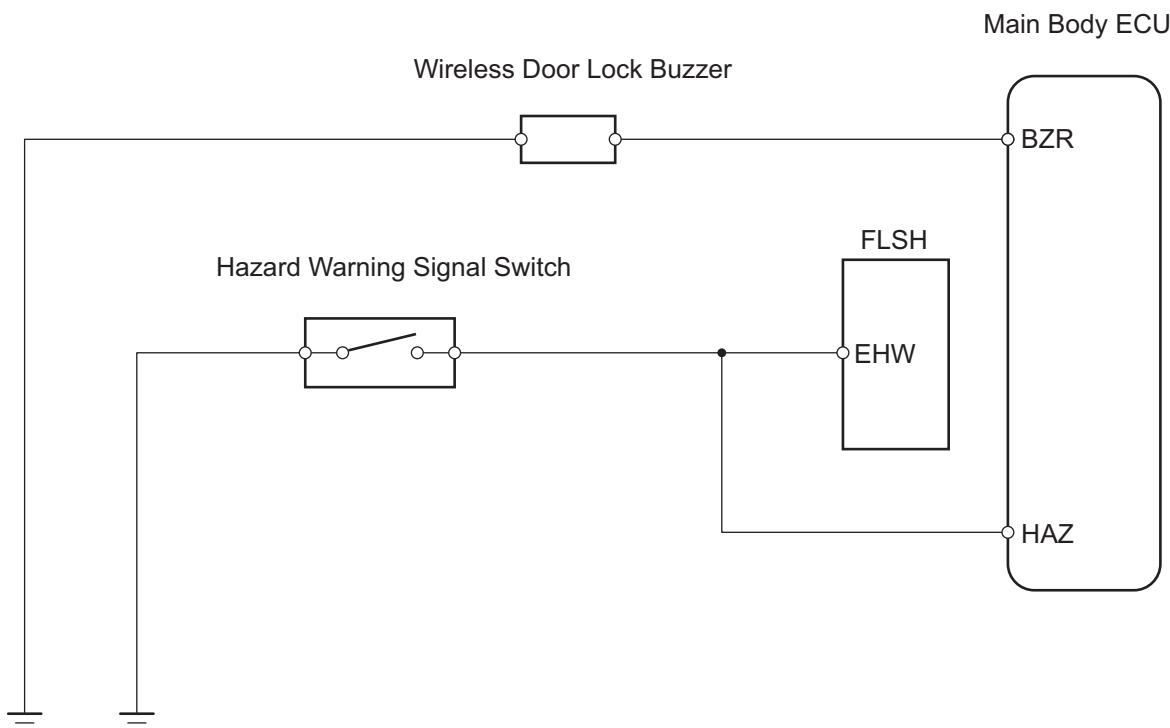
DESCRIPTION

In some cases, wireless door lock control functions are normal but the hazard warning lights and / or wireless door lock buzzer answer-back function(s) is not operate. In such cases, the main body ECU's hazard warning lights and wireless door lock buzzer signal outputs may be malfunctioning.

NOTICE:

Troubleshooting should be started after confirming that the customize status of the answer-back function has been switched ON.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK WIRELESS DOOR LOCK CONTROL FUNCTION

(a) Check the wireless door lock control functions by operating the transmitter switch.

Result:

Result	Proceed to
Wireless door lock functions are normal but hazard warning lights answer-back does not occur	A
Wireless door lock functions are normal but wireless door lock buzzer answer-back does not occur	B
Doors cannot be locked and unlocked with transmitter	C



Go to step 4



Go to FLOWCHART

A

2

PERFORM ACTIVE TEST BY INTELLIGENT TESTER (FLSH RELAY)

(a) Select the ACTIVE TEST, use the intelligent tester to generate a control command, and then check that the hazard warning lights flash.

Main body ECU:

Item	Test Details	Diagnostic Note
HAZARD	Turns FLSH relay ON / OFF	-

OK:

Hazard warning lights are turned ON / OFF.



REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

NG

3

CHECK HAZARD WARNING LIGHT

(a) Check that the hazard warning lights flash continuously when the hazard warning signal switch is pressed.

OK:

Hazard warning lights flash continuously.



Go to LIGHTING SYSTEM

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)

DL

4 | INSPECT WIRELESS DOOR LOCK BUZZER

(a) Measure the resistance between terminals 1 and 2 of the buzzer.

Standard resistance:

Approximately 1 kΩ

NOTICE:

- The buzzer circuit is built into the body ECU, not into the buzzer itself.
- When battery voltage is directly applied to the buzzer, the buzzer does not sound.

NG

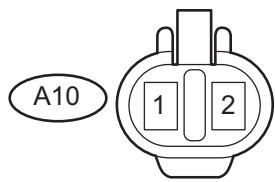
REPLACE WIRELESS DOOR LOCK BUZZER

OK

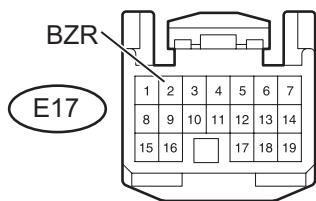
5 | CHECK WIRE HARNESS (WIRELESS DOOR LOCK BUZZER - MAIN BODY ECU AND BODY GROUND)

Wire Harness Side

Wireless Door Lock Buzzer



Instrument Panel Junction Block
(Main Body ECU)



(a) Disconnect the A10 buzzer connector.

(b) Disconnect the E17 ECU connector.

(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
A10-1 - E17-2 (BZR)	Below 1 Ω
A10-2 - Body ground	
A10-1 or E17-2 (BZR) - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

DL

REPLACE INSTRUMENT PANEL JUNCTION BLOCK (MAIN BODY ECU)